4: Grajdanzev--51 S-4 (no date) 1942 Formosans
116, 243, 439, 177.43 Japan
636.43

"The unique position of rice in the economy of Taiwan justifies a more detailed discussion. Rice culture was important before the Japanese came to the island and rice exports to China were quite considerable. However, since the Japanese took control the production of rice has doubled in about a quarter of a century and more than half of the total production now goes to Japan. The credit for this achievement is usually given to the Japanese administration and the expansion has been taken as proof of the beneficent results of Japanese rule."

4:Grajdanzev--52 S-4 (no date) 1942 Formosans
116. 243, 311

"Below we give the data on rice production since 1905. Area under rice

(1,000 ko)	1905	1915	1920	1925	1930	1935	1936	1937	1938	1939
Paddy	417	462	471	526	592	657	662	640	617	...
Dry field	44	44	45	42	41	42	41	38	28	..
Total	461	506	516	568	633	700	703	678	645	646
Yield per ko (koku)										
Paddy	9.7	9.8	9.7	11.7	11.8	13.3	13.9	14.0	15.5	
										14.2*
Dry field	7.7	6.4	6.1	6.9	8.8	8.7	8.4	7.7	7.8	
Crop (1,000 koku)										
Paddy	4,016	4,503	4,567	6,154	7,010	8,759	9,213	8,937	9,599	...
Dry field	338	281	276	289	361	364	345	295	218	...
Total	4,354	4,784	4,843	6,443	7,371	9,123	9,558	9,232	9,817	9,152
Price (yen per koku)	6.6	7.8	22.5	25.2	14.6	21.6	22.4	22.6	24.2†	25.6†

* Average for both paddy and dry field.

† Approximate figures."

4:Grajdanzev--52-53 S-4 (no date) 1942 Formosans
116, 243, 311, 656, 177.24 Japan
636.24

"Thus from 1905 to 1920 the area under rice expanded slowly and the yield per ko showed no increase, while from 1920 to 1935 the area under rice increased by thirty-seven per cent and the yield per ko of paddy increased also by thirty-seven per cent. The explanation of this difference does not lie in Taiwan, but in Japan proper. After 1920 the leaders of the Japanese government became worried over the rice supply of the Empire. The rapid growth of population and the insufficiency of domestic production brought a sharp increase of rice imports from abroad. From the annual average of ¥16.6 million in 1913-17 Japan's imports of rice rose to an annual average of ¥72.0 million in the period 1918-22.

Besides the difficulty of balancing payments abroad, the government did not like this dependence on foreign supplies in time of war. A program for the increase of rice production in Japan proper, Korea and Taiwan was worked out and the necessary measures applied, such as the construction of dams and canals for irrigation purposes, the enlargement of the net-[53] work of agricultural experimental stations, the distribution of small subsidies to new producers of rice as well as to those who would produce new varieties of rice selected by the stations. The fact that these measures were quite effective shows not only the efficiency of the administration but also the ability of the Chinese farmers to act in response to economic factors."

4:Grajdanzev--53-54 S-4 (no date) 1942 Formosans -1-2
116, 243, 435, 458, 464, 177.43 Japan
636.43

"One of the important reasons for the stagnation of rice exports from Taiwan to Japan before 1922 was the unpalatable character of Taiwan rice. Through the efforts of the agricultural stations, however, a new kind of rice—horai rice—was introduced, which was acceptable to the Japanese consumer and had a higher yield than the native varieties. It commanded a lower price than the rice produced in Japan but a higher one than the local varieties. As may be seen from the preceding table [See p. 52, category 116--analyst] the average price per koku rose from ¥7.8 in 1915 to ¥22.5 in 1920. The latter year was one of post-War inflation, but 1925, a more normal year, brought an even higher price. On the basis of this rise in price and increase in acreage one might jump to the conclusion that the island farmers were much better off. Some of this increased wealth they would use to purchase Japanese manufactured goods and some to increase their own consumption of rice, so that both parties—the Japanese and the Chinese—would gain.

Japanese economists (1) share this view. In their opinion the opening of the Japanese

1. Especially Takahashi. He at one time was considered 'the brains of the Kwantung Army' and his works are widely known in Japan.

market to Taiwan rice brought a rise in the price of Taiwanese rice, especially after

the depression of 1929-32. The efforts of the government to raise prices, they say, were dictated by the difficult situation of the Japanese farmers. The level of rice prices in Japan was dictated by the costs of the Japanese farmers, and these prices brought windfall profits for the Taiwan farmers. It brought a rise in rice prices in Taiwan, increased wages and unwillingness on the part of some farmers to become workers in industry just because of these prosperous conditions. Industrialization of the island (which in the opinion of Takahashi is inseparable [54] from low wages) was retarded. Now the only way out is to introduce a rice monopoly in Taiwan in order to depress the price, using the resulting difference in Japanese and Taiwanese prices for budgetary purposes (2).

2. Takahashi, op. cit., pp. 73-87."

116 243, 435, 655, 177.24
636.24

"Space does not permit us to analyse the rice situation in detail. The table below shows the rapid process of displacement of other kinds of rice in Taiwan by horai.

Crop Area Under Various Kinds of Rice in Taiwan
(In thousand ko)

	1905	1915	1920	1925	1930	1935
Common Taiwan rice	393	423	417	370	370	263
Clutinous, round	24	39	53	81	68	73
Glutinous, long	...	...	...	...	19	18
Horai	0	0	0	72	135	305
Total	417	462	472	523	592	659

Yields of Various Sorts of Rice in Taiwan were as Follows
(1930-35 average)

	(koku per ko)
Common Taiwanese	12.1
Round glutinous	10.2
Long glutinous	11.7
Horai	14.6

As may be seen, the difference is quite pronounced—from 2.5 to 4.4 additional koku per ko, or an increase in yield of twenty to forty per cent as compared with other

varieties.

But on the other side, the production costs of one ko of common rice in 1925 were ¥223.8, while for horai the amount was ¥342.0, and—what is also very important—whereas thirty-four per cent of the production costs of common rice consisted of the farmer's own labor, home-prepared fertilizers (which the farmer does not buy) etc., these costs in the production of horai amounted to only twenty-two per cent. In other words a much greater part of the expenses on horai consisted of sums paid for commercial fertilizers, etc. and as a result, the farmer does not receive so much profit from horai, but is compelled to plant it because he cannot sell his own [55] kind of rice in the Japanese market. The expansion of area under horai is therefore not so much a sign of prosperity, as it would at first sight appear, as a sign of the growing need of the farmer for money to pay taxes, to pay for irrigation, and to pay for the tobacco which he formerly produced himself (and is now a state monopoly)."

4:Grajdanzev--55 S-4 (no date) 1942 Formosans-1-2
116, 243, 262, 435, 439

"Of course, the inclusion of Taiwan—a region of low prices—in Japan's customs area of high prices should result in an increase of prices in Taiwan, but this does not mean that Taiwan's farmers were necessarily the gainers. All prices were raised and it is by no means certain that this rise benefited farmers and workers. We may find an indirect answer to this question by calculating the average per capita consumption of cereals in Taiwan. Rice is the principal food for the islanders, and all other cereals produced there amount to less than 0.5 per cent of the production of rice and, consequently, may be neglected. Import and export data are available and Japan may serve as the standard of comparison. To simplify matters we assume that the crop of a given year and the imports of that year are consumed in the same year.

Rice Consumption in Taiwan*

	Crop (1,000 koku)	Imports (1,000 koku)	Exports (1,000 koku)	Balance (1,000 koku)	Population (1,000)	Annual per capita consumption (koku)
1905	4,354	57	620	...	3,039.8	1.25
1910	4,187	43	648	3,582	3,250.0	1.10
1915	4,785	64	767	4,082	3,479.9	1.17
1920	4,842	160	619	4,383	3,655.3	1.20
1925	6,443	718	2,057	5,104	3,993.4	1.28

*Footnote on next page.

Rice Consumption in Taiwan* [Cont.]

	Crop (1,000 koku)	Imports (1,000 koku)	Exports (1,000 koku)	Balance (1,000 koku)	Population (1,000)	Annual per capita consumption (koku)
1930	7,480	97	2,220	5,357	4,592.5	1.17
1935	9,122	7	4,493	4,636	5,212.4	.87
1936	9,559	7	4,788	4,778	5,452.0	.88
1937	9,233	7	4,842	4,398	5,609.0	.78
1938	9,619	15	4,878	4,756	5,747.0	.83
1939	9,152	8	4,106	5,054	5,880.0	.86

* In calculations made for the compilation of imports and exports before 1930 one koku of rice is taken as equal to 2.7 piculs.
Sources: for 1930-39: Keizai nenkan; for 1905-25: for production, Takahashi, op. cit.; for trade, Nippon boeki seiran. The last column is calculated."

4:Grajdanzev--82-83 S-4 (no date) 1942 Formosans
116, 243, 427

"Nothing appears in the formulated [government--analyst] policy concerning the decrease of rent. According to an investigation by the government-general in 1927, rent amounts to about 27 to 29 per cent of the crop from dry fields, 43 to 45 per cent from paddy when one crop is taken each year, and 49.3 per cent in case of two crops. The low figure for dry fields is more than suspicious, for if the figures of the investigation are correct, the tenant cultivating the dry land is in a better position than the tenant of paddy with two crops.

Comparison of the Position of Tenants on the Best Lands in Taiwan, 1927.

Average figures	Dry field (yen)	Paddy with two crops (yen)
Value of crop (per ko)	366.4	517.7
Rent	100.5	255.7
Balance	265.9	262.0

It is well known that the amount of labor required to till one [83] ko of paddy with two crops is several times greater than the amount of labor necessary to cultivate one ko of dry field, and it is strange that the tenant of the dry land is at the end of the year in a better position than the tenant of the paddy."

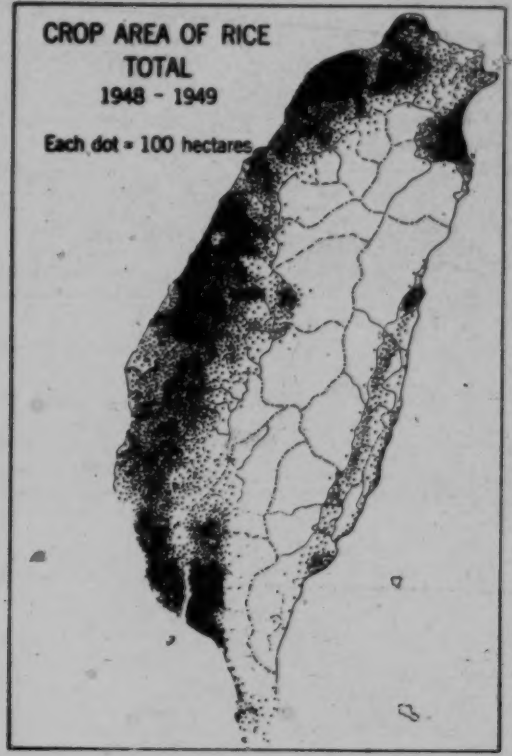

CROP AREA OF RICE
TOTAL
1948 - 1949
Each dot = 100 hectares

FIG. 16

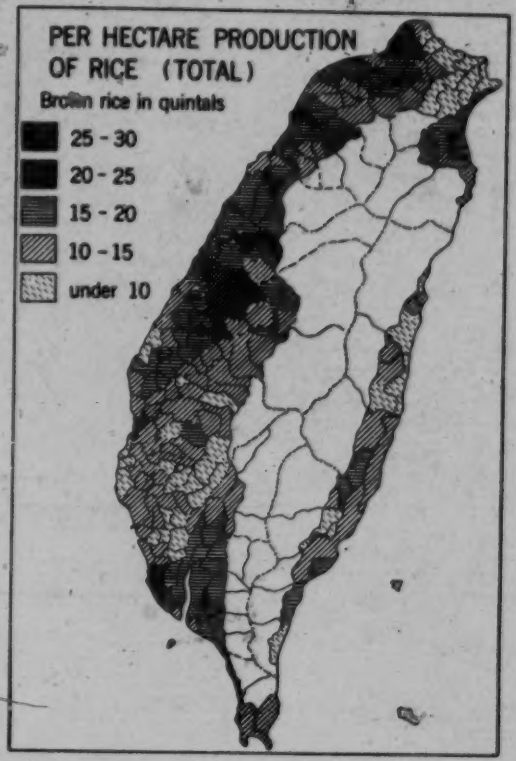

PER HECTARE PRODUCTION
OF RICE (TOTAL)
Brown rice in quintals
25 - 30
20 - 25
15 - 20
10 - 15
under 10

FIG. 17

8: Chen--450
116, 243, 311

FIG. 18

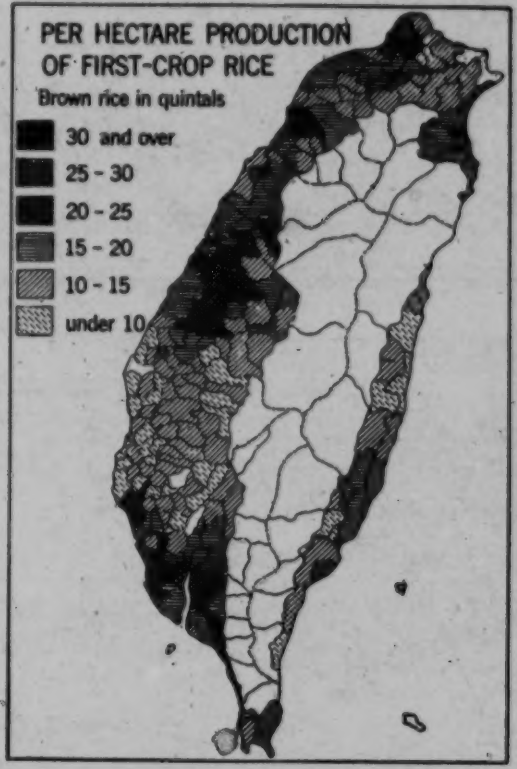


FIG. 19

8: Chen--450 [2]
116, 243, 311

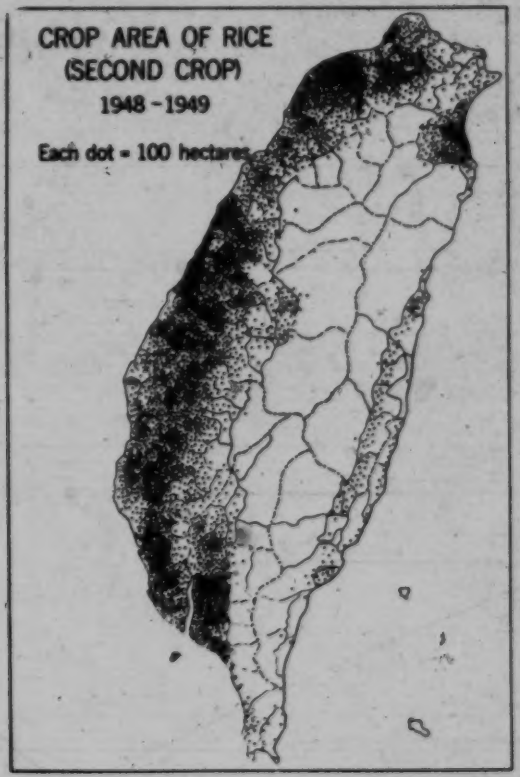


FIG. 20

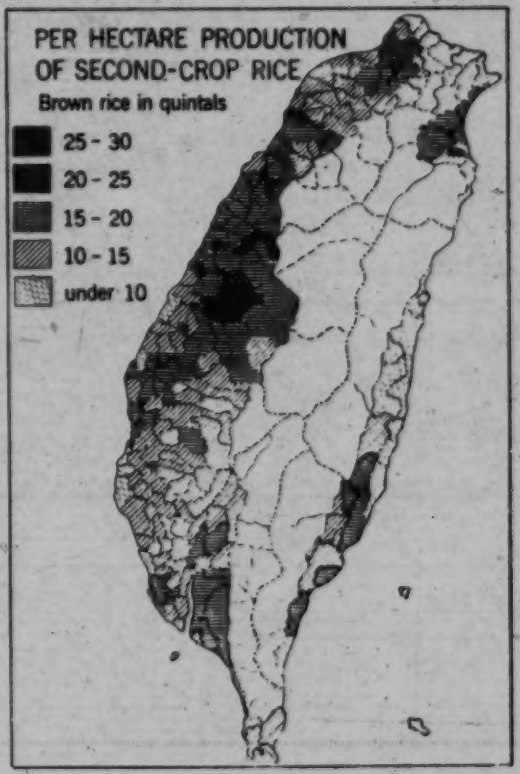


FIG. 21

9: Yamasaki--231-232 N-5 (1896-1897) 1900 Formosans 116, 243, 311

The most important species of cereal on the island is rice (Orysa sativa L.). In the plains as on [232] the gentle slopes of the hilly regions, the rice fields occupy a great area. The basins of the two Tamsui Rivers, the Kapsiulan Plain near Giran, and the Taichū Plain are its chief centers. In East Taiwan we also find small rice plantations, as far as Chinese colonists have penetrated. There are usually two harvests a year: in South Taiwan even three harvests are obtained from the same fields.

9: Yamasaki--232 [5] N-5 (1896-1897) 1900 Formosans 116, 243

In addition to the rice already mentioned, the species of cereals found are wheat, barley, millet and buckwheat (Fagopyrum esculentum M.).

A. Production of Rice

433 The production of rice has increased steadily in the postwar years; production in 1950 exceeded the 1938 production level peak achieved by the Japanese. However, because relatively less fertilizer is available for use, the per hectare yield of Formosan fields has not reached the record yield of 2,242 kilograms achieved under Japanese rule. Rice exports have been sacrificed to meet the domestic requirements of the swelling population of the island. In 1938, nearly 50 per cent of the 1.4 million metric tons of rice produced was exported; in 1954, only 36,000 metric tons of rice were available for export in spite of the fact that nearly 1.7 million metric tons were produced in that year. Such a drastic decrease in rice export has affected the dollar reserves of the Formosan people and made it difficult for the country to import the industrial goods necessary for continued economic development.[13]

243 Rice and sugar cane, the two most 249 valuable crops, compete for use of land

13. Industrial Development Commission, Industry of Free China, Vol. 3, No. 6, June 1955, p. 80.

243 resources. Since rice cultivation and
249 harvesting takes about four months and sugar cane takes anywhere from fifteen to seventeen months before it can be harvested, rice has gradually taken the lead. Competition for land is especially keen in the area near Taichung, where paddy fields can be used either for the cultivation of rice or of sugar cane.

243 There are four main types of rice grown on Formosa -- Ponlai rice, native rice, upland rice, and glutenous rice -- and many varieties. Ponlai rice was introduced in Formosa during the Japanese occupation because it suited the tastes of the Japanese. It remains the most popular type of rice cultivated on the island because it has a high yield and good milling quality. Ponlai rice accounts for approximately 55 per cent of current rice production.

B. Production of Sweet Potatoes

244 Sweet potatoes are the second most important food stuff produced on Formosa. They are a staple of diet and are also used as raw material for alcohol and yeast as well as for hog feed. The major part of the annual
251 crop of sweet potatoes is sun-dried to produce chips which can be stored with minimum waste.

45:Stanford U. S-4, 5 1956 AD1 Formosa
~~AD1~~ AD1

C. Production of Sugar Cane

249 648 433 Sugar cane is the raw material for Formosa's sugar industry. Postwar increase in production is all the more remarkable since in the years before the war the Japanese did all they could to exploit the potentialities of sugar cane production to meet the sugar requirements of Japan proper.

Sugar cane is usually planted in the summer June to September. About a year and a half are required before the cane is ready for harvest. Under the International Sugar Agreement concluded in London in 1953, Formosa is permitted to export 600,000 metric tons of sugar annually. Government policy has been adapted to meet this quota and allow for domestic consumption. Land once used for sugar cane is now being used to produce other products.

D. Production of Wheat

243 433 Wheat produced on Formosa accounts for less than one per cent of the total value of the island's farm production. For this reason it has been generally believed that Formosa lacks the conditions suitable for

optimum wheat production. Postwar research has proved that wheat can be grown between rice crops in the regions centering on Taichung, Changhua, and Tainan, and the amount of land given to wheat production has been increasing gradually.

E. Production of Tea

About 90 per cent of the tea produced on Formosa is exported to American and European markets. The production of tea and its planted acreage has been more or less constant since 1880. Commercial growing of tea began about 1865, and there are three major groups -- Paochung, Oolong, and black -- which are most successfully grown on the island.

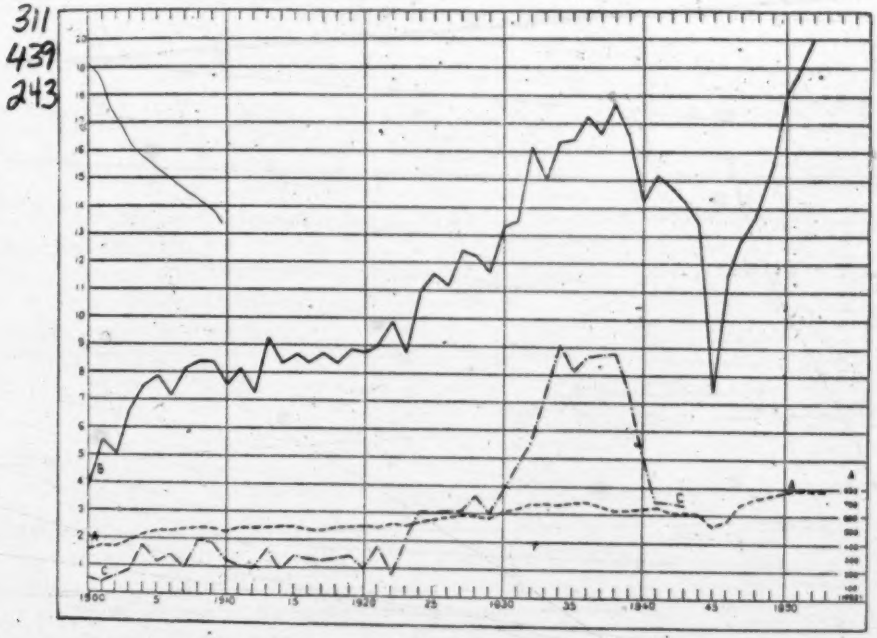
VII. FORESTRY

Forests cover about 64 per cent of the total area of Formosa because abundant rainfall is favorable to the growth of trees. The island's forests furnish all domestic lumber and prevent erosion in mountainous areas. Forestry products accounted for approximately three per cent of the total value of all goods produced in 1953. The total timber reserve, as of 1954, was estimated

48: Chen E-4 (no date) 1955 ADI Formosa ADI

Productivity was raised by improvements in various aspects. The rapid increase in the output of rice from the 1920's was the result of the adoption of a new strain (Ponlai rice). By the 1930's, the production of rice in Taiwan was so large as to be twice its local demand, and the surplus rice was exported to Japan. Though the price of Taiwan rice was controlled by the Japanese government and the profit of trade in rice was mainly monopolized by big Japanese traders, the increase of production did have some benefits for Taiwanese, and no doubt, this contributed to the lowering of the death rate after 1920.

Fig. 6 Acreage of Cultivation, Amount of Production and Exportation of Rice, Taiwan, 1900-1953



A: Acreage of Cultivation (unit: 1,000 ha) B: Amount of Production (unit: 1,000,000 hectoliter)
C: Amount of Net Export (unit: 1,000,000 hectoliter)
Source, 1900-1948, from the Rice of Taiwan, 1949, Taipei.
1949-1952, from Taiwan Agricultural Yearbook, 1952, Taipei.

The condition of sugar was a little different from that of rice. The profit in sugar manufacturing was exclusively monopolized by the Japanese enterprisers. But it is undeniable that, in respect to the improvement of agricultural techniques and the raising of productivity, substantial effects were obtained.

As pointed out by W.S. Thompson, "underfeeding weakens the individual and renders him less resistant to disease, whether it be of the degenerative or of the germ